The Energy Source

Issue 3: Summer 2015

The Energy Source is an online newsletter published twice a year by the Department of General Services (DGS) Office of Energy Performance & Conservation. It is our goal that this publication will serve to keep agencies up-to-date on energy-related news and events. Thank you for your interest!

IN THIS ISSUE

WELCOME, INTERN!

DGS Energy Office welcomes GSIP intern Caroline Faux this summer. Please read more about Caroline here.

BUY LOCAL CHALLENGE

The DGS Green Team is participating in the Buy Local Challenge. Learn more about how to be green by eating local and support your local economy at the same time here.

FY16 UTILITY BILLS

As we come to the end of FY2016, it is time again to ensure that DGS has records of all

Maryland Recognized by US DOE

The State of Maryland was recognized for achieving an ambitious energy reduction goal at the Department of Energy's Better Buildings Summit held May 27-29. As a Better Buildings Partner, Maryland committed to a 20% energy reduction by 2020 in a nine million square foot building portfolio. Maryland was recognized as the first state to achieve its goal--having reduced by 21% last year from a FY2008 baseline.

Maryland Recognized with other Better Building Challenge Partners by the Department of Energy

The DOE also published an Implementation Model that featured DGS' 16 Agency Energy Competition. The Implementation Model features a successful program that other Challenge Partners can replicate.

Read the press release.

State Energy Database Training

state-paid utility bills so that we can report on energy usage and cost. Please ensure that your agency or university's data in the database is complete and accurate. Submit your outstanding utility bills through the end of the fiscal year to BITHENERGY at utilitybills@bithgroup.com

ENERGY COORDINATOR RESOURCES

Free energy manager tools

CONTACT US

Emily Soontornsaratool
State Energy Data, DGS
Emily.Soontornsaratool@maryland.gov

(410) 767-3061

Barry Powell
State Energy Planning, DGS
Barry.Powell@maryland.gov
(410) 767-4375

Alicia Singleton
BITHENERGY
asingleton@bithgroup.com
(410) 962-1188 x24

This May, contractors from BITHENERGY delivered training on the State Energy Database in Basic and Advanced sessions. Twenty-one individuals representing state agencies, contractors, and vendors across Maryland participated.

Basic training covered all aspects of navigating the database. Advanced training covered reporting, benchmarking, and solving real-life energy analysis needs. Participants offered overwhelmingly positive feedback on the training.

Interested in receiving training? Please contact Emily at emily.soontornsaratool@maryland.gov. There are opportunities for on-site training at your office!

Featured Agency: FSU

Frostburg State University - Innovation in the Making

Sustainable Energy Research Facility

The era of energy independence has arrived at Frostburg State University (FSU). The Sustainable Energy Research Facility (SERF) at FSU is a "net zero" building, which was dedicated on October 29, 2014. It serves as the first facility of its kind to conduct renewable energy research, provide educational and instructional classes, and become a test site for new sustainable technologies.

The SERF building demonstrates the ability to achieve total 100% independence from the grid. It was designed to study the following technologies:

DGS Office of Energy Performance and Conservation website

- wind and solar power,
- passive solar heating,
- lighting,
- solar thermal systems,
- battery storage,
- hydrogen generation,
- energy recovery systems,
- computer controlled energy management systems,
- digital controls,
- variable frequency drives,
- geothermal impacts, and
- integration of said systems.

Daylight reduces the lighting impact of this 16 computer classroom used for instructional training.

In 2009, Dr. Oguz Soysal, (Ph.D Electrical Engineering) conceived the idea of the SERF with the aid of his wife, Hilkat Soysal (former FSU adjunct professor). They collaborated with Roscoe Bartlett (R-MD 6th Dist) to obtain a construction grant from the Department of Energy. More recently, Theresa Testoni (Silver Spring) also made a gift through the Frostburg State University Foundation in support of the project. Dr. Joseph Hoffman (Ph.D Physics), Dean of FSU's College of Liberal Arts and Sciences, oversees project funding.

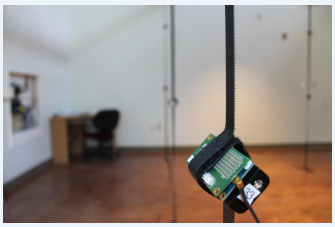
Under the new direction of Dr. Steven Tidrow (Ph.D Engineering/Physics), the SERF will continue to innovate and raise the bar for the growth and understanding of sustainable renewable energy technologies across Maryland and the nation.

Tyler Lemmert and Mayowa Ogundipe are FSU electrical engineering graduates who assist with the daily operations of the SERF. They are enthusiatic tour guides when not immersed in wiring variable frequency drives and other research.

FSU staff provided DGS Energy Engineer Barry Powell with a tour of the facilities. The 6,000 square foot SERF building is comprised of a classroom equipped with 16 computers (above), common areas, offices, research laboratory, module room, kitchen, mechanical room and garage.

8 Solatubes provide natural sunlight in cubicle room and hallway

A Solatube is a tubular light conduit that harvests daylight through a dome on the roof of the SERF and transfers sunlight down a reflective tube through a diffuser in the ceiling below. Daylighting from the sky proves to be more desirable when compared to an LED light fixture beside it.



The research lab is currently used to study air temperatures and air movement utilizing suspended sensors.

FSU is utilizing a research lab to test air temperatures and air movement from the radiant flooring throughout the complex. Supplemental heat can be introduced into this experimental environment through ductwork from an Energy Recovery Unit (ERU) located in the mechanical room.

4 battery banks (570 amp hours each) provide backup energy for a week in the absence of sunlight or wind.

The above inverter panels transfer renewable energy from the feed sources to the battery banks that distribute needed energy throughout SERF. Student electrical engineers strive to use renewable energy efficiently for various applications.

SERF mechanical room features a biomass boiler with solar heating to radiant flooring that include supplement heat from an energy recovery unit that also provides ventilation.

The main source of heat for extreme temperatures at SERF is a biomass boiler. Supplemental building heat by natural sunlight and a solar thermal collector array (planned for installation later this year) can be used independently. A solar thermal system supplies heated water and stores it in insulated collector tanks that allow pumps to circulate warm water through the closed loop radiant floor system for space heating. This system also provides hot water for domestic use.

Thanks to FSU staff for taking time out of their busy schedules to provide tours and allow pictures to be taken of their innovative and exciting SERF. For renewable energy enthusiasts, FSU SERF website and Director's contact information is noted below:

Dr. Steven Tidrow, Associate Professor
Department of Physics & Engineering
(301)687-7348
sctidrow@frostburg.edu
http://www.frostburg.edu/renewable/

EPA's Battle of the Buildings

This July, DGS will be participating in the EPA's National Building Competition "Battle of the Buildings" for the second year. This friendly competition encourages buildings to reduce their energy use. Six DGS buildings will battle it out this year. Returning competitors include: **Mary Risteau District Court/Multi-Service Center**, **Ellicott City District Court/Multi-Service Center**, and **Louis L. Goldstein District Court/Multi-service Center**. Joining the competition for the first time are: **Centreville Carter Hickman District Court**, the **Denton District Court**, the **Paul Martin District Court**.

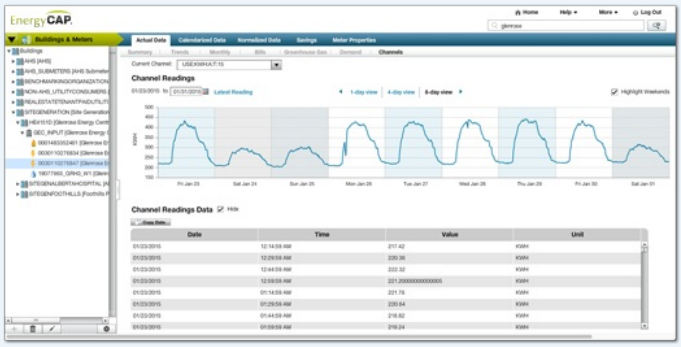
A **Kick-Off Event** is scheduled for **July 29** at 10:00 a.m. at Mary Risteau District Court (Bel Air). All are welcome! **Please RSVP here**.

Read about last year's competition results on the DGS website.

New EnergyCAP Feature: Interval Data

The Maryland State Energy Database tracks energy cost and consumption for all State facilities. This section features a useful report or database feature that might be helpful to the over 300 registered database users across Maryland. Read more about the State Energy Database here.

EnergyCAP has released new functionality that makes it possible to track interval data. Interval data is a powerful tool for energy management and can complement the robust utility invoice data that is already in the State Energy Database.



Why Interval Data? There has been a lot of buzz lately about interval data. While utility invoice analysis makes up a significant portion of what we do at DGS, there are many reasons that we might need to look at data in more detail. Interval data gives us that level of detail to look at usage patterns throughout a day.

Our contractors at BITHENERGY recently brought DGS 15 minute interval data in for the State Office Center complex.

DGS will analyze our data for participation in Demand Response activities and fuel switching opportunities.

Learn more about interval data in a blog post by EnergyCAP.